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Remarks

The application has been amended to better define the present invention. Reconsideration is respectfully requested.

With respect to paragraph 1(a) of the "Detailed Action", the status of application serial no. 10/128,821 has been updated on page 16 to report that it is now U.S. Patent No. 7,088,782. The status of the other two applications cited on page 11 (10/245,090) and page 16 (10/128, 756) still remains as pending.

With respect to paragraph 1(b) – (e) of the "Detailed Action", the following comments are provided:

b. T = Sampling Time = 1/Fs where Fs = the Sampling frequency in Hz

c. trace = Sum of the diagonal elements of a matrix

c. f_k = Function f at the k th sub-carrier
(In an OFDM system, dedicated pilot tones are sent at certain sub-carriers to act as reference points so that offsets such as the sampling frequency offset and phase noise / residual frequency offset may be corrected. These pilot symbols are normally derived from a simple alphabet such as +/- 1. Hence if this is the case, as shown below the Equation to calculate Beta on Page 17,

f_k(pilot(d-1), pilot(d)) = pi if pilot(d-1) $\neq$ pilot(d) else f_k(pilot(d-1), pilot(d)) = 0.

This means that if the pilot tones at the k^{th} sub-carrier differs from symbol to symbol then an appropriate compensation in phase angle needs to be carried out otherwise it may create error in estimation of the sampling frequency offset.

Even in cases where the pilot tones do not consist of a simple alphabet such as (+/- 1), appropriate values for the function f_k(pilot(d-1), pilot(d)) may be derived.

d. I = Identity matrix = matrix with all its diagonal elements equal to 1 and rest of the elements equal to 0.

e. The variables Ω_k^{early}, Ω_k^{late}, C_k^{early}, C_k^{late}, Ξ_k^{early}, Ξ_k^{late} are used to generate an error signal to track the sampling frequency offset in a phase locked loop.

Basically, assume a variable x whose value we are trying to estimate. We end up estimating say x' instead of x. Now we want to track this variable because of the changes in the system. So we generate two new estimates say $C_k^{early} = x - \delta$ and $C_k^{late} = x + \delta$ where δ is some small number. We know that the real value of x lies somewhere between C_k^{early} and C_k^{late}. Hence these two values are now used to generate an error signal based on the estimate of x. Based on the (difference between x' and $C_k^{early} = \Xi_k^{early}$) and (difference between x' and $C_k^{late} = \Xi_k^{late}$) an error signal $a_q(d, \varepsilon)$ is generated. This error signal determines whether the sampling frequency error is positive or negative and hence it may be tracked and corrected as the system is in operation.

In view of the above comments, Applicant believes that these terms and phrases would be well understood by someone of ordinary skill in the art and further amendment of the specification would not be necessary.

To overcome the rejections under 35 USC § 112, claims 5, 6, 14, 19, and 20 have been cancelled.

Applicant appreciates the Examiner's indication that claims 2-4, 7-13, and 15-18 are allowable. Claims 2, 11, 12, 13, 15, and 17 have been amended in the way suggested by the Examiner. The Applicant thanks the Examiner for pointing these matters out.

Respectfully submitted,

Daniel J. Long

Daniel J. Long
Attorney for Applicant
Registration No. 29,404

BAE SYSTEMS Information and Electronic Systems Integration Inc.
P.O. Box 868
Nashua, NH 03061-0868
Tel: 603- 885-2643

I hereby certify that this correspondence is being transmitted by facsimile (571) 273-8300 to Commissioner of Patents, Box 1450, Alexandria, VA 22313-1450 on July 31, 2007.

Gloria Abbasciano　　　　7-31-07

Gloria Abbasciano　　　　Date of Signature